November 7, 2007

Michigan House of Representatives
Judiciary Committee

Ladies and Gentlemen,

Thank you for allowing me to address you this morning.

The controversy over embryonic stem cell research is clouded by philosophy, religious beliefs, ethical and moral concerns and scientific interpretation. It is also confused by loose interpretation or understanding of embryology, i.e., "the science of dealing with the formation, development, structure and functional activities of embryos." (Webster)

When we envision a human embryo, we see a very tiny "person," complete with recognizable organs, e.g. a head, feet, arms and a moving chest secondary to the beating heart. This, in fact, is really a fetus. In man, an embryo is an organism, in the earliest developmental stage of a fertilized egg, from about two weeks after fertilization *and implantation into its mother's uterus,* to the end of the seventh or eighth week. (Dorland). Once we can identify the developing organism as a human, not a horse or chicken, it is properly called a fetus, not an embryo.

The term, "embryonic," has two interpretations. The first is, "pertaining to or in the state of an embryo." The second definition, however, is, "rudimentary, *or* undeveloped." (Webster) Embryonic stem cell research clearly refers to the latter definition. While it is done on a fertilized egg, it is not done on an <u>implanted,</u> fertilized egg. A fertilized egg that is not implanted into the mother's uterus is a pre-embryo, not an embryo. It goes through several stages of development,

the final stage being a blastocyst, i.e., a single layer of about 16 cells surrounding a hollow cavity that has yet to begin to develop any organs. In fertility clinics some eggs are implanted at three days, but most are implanted at about five days, when the developing egg has reached the blastocyst stage.

In as much as the process of in-vitro fertilization frequently results in the creation of many fertilized eggs, the embryologist recommends which egg or eggs should be injected back into the mother's womb, in hopes of implantation and the creation of a viable fetus. The rest are either frozen for possible future use to create a child or are discarded as medical waste. Most are discarded. It is estimated that over 500,000 fertilized eggs are frozen and in storage in the United States.

It is these discarded blastocysts that are the subject of this controversy. Shall we allow medical science to use this "medical waste" to develop "embryonic (or undeveloped) stem cells," i.e. stem cells that have the potential of becoming skin, muscle, nerve or insulin producing cells, in the hope that our scientists can look for a way to alter the genetic defects that result in Type I Diabetes in children and Parkinson's Disease in adults and to regenerate spinal cords that have been destroyed by drunken drivers?

The opponents of embryonic stem cell research cite several reasons for their justifying their position. Most are either religious or are related to their personal moral or ethical value judgments. Their claim to a scientific justification is flawed and distorts the issue.
They claim that the hope that this new advance in research is speculative and has yet to result in any cures shows their either naïve or intentional ignorance of what scientific research is all about. Virtually every breakthrough in scientific discovery began with failures, yet pursuit of ideas by Pasteur, Fleming, Salk and Sabin and the development of drugs like the statins, beta blockers and ACE inhibitors evolved from the determination of our brightest scientists, in spite of their early setbacks. Their belief that they were on the right track resulted in drugs which save the lives of countless numbers of people living in Michigan and across the country. If we don't pursue this opportunity now, will we ever know the extent of its potential?

The argument against human cloning is again misleading. Cloning is copying. There are two types of cloning, reproductive and therapeutic. Reproductive cloning is "Dolly." None of us believe that reproductive cloning should be permitted. The other type of cloning involves a process in which an unfertilized egg, (therefore one that cannot produce an offspring), is used to develop a set of cells that have a defect, derived from the nucleus of a patient with a particular disease. Scientists can now study the defect, determine what is wrong that produces the disease and potentially find a way to correct the problem. Once again, there is no way that this process can lead to reproduction. And if there is a way to do it, we must prohibit it.

The use of adult stem cells for therapeutic purposes has been very rewarding. As a founding member and Vice Chair of the JP McCarthy Foundation, I spearheaded the formation of the JP McCarthy Cord Stem Cell Bank at the Karmanos Cancer Institute in Detroit. To date, we have collected over 4500 cords resulting in forty-five cord blood transplants, mostly to the underserved minority population of Michigan. Cord blood contains adult stem cells. These cells are already differentiated into specific organ building blocks and provide limited resource for scientific study.

I choose not to be engaged in philosophic or religious discussion. I would, however, like to close with some thoughts on morals and ethics. Some people in this room think it is immoral to use alcohol. I respect their values. Most of you, I believe, find it acceptable when used in moderation and when it does not impede the rights of others. Prohibition was a total failure and was repealed as fast as it was enacted.

Some states permit capital punishment, most do not. It is the will of the majority, not the ethics or morality of the minority that rules. In some professions it is unethical to be reimbursed for a referral. In medicine, it is called "kickbacks." It is not only unethical, it is illegal. That is not true in some other professions, where it is considered ethical, good business and perfectly legal. Ethics and morals are a personal and individual judgment. I don't impose mine on you, why should you impose yours on me?

Do as you please. Don't participate in embryonic stem cell research if it is against your better judgment, but please don't tell us that the citizens of forty-five of our states that permit, endorse and support embryonic stem cell research are unethical, immoral and murderers. The majority of the citizens of Michigan like the majority of the citizens of the United States want this law rescinded.

Thank you for the opportunity to address this body

Melvin A. Lester, M.D.
Adjunct Professor of Medicine
Special Assistant to the Vice President of Medical Affairs
University of Michigan Health Systems
President, Michigan Citizens for Stem Cell Research and Cures